## AD-A283 969

## FINAL TECHNICAL REPORT

on

## A WORKSHOP ON NEW DIRECTIONS IN EXTREMAL STOCHASTIC ANALYSIS OF NONLINEAR OCEAN SYSTEMS

RESEARCH PROJECT N00014-93-10480

in support of

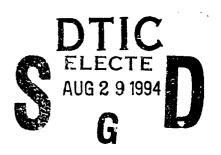
## RELIABILITY OF NONLINEAR OCEAN STRUCTURES UNDER STOCHASTIC EXCITATION

Submitted to

Dr. Julia Abrahams

Mathematical Sciences Division

Office of Naval Research



by

Solomon C.S. Yim
Ocean Engineering Program
Department of Civil Engineering
Oregon State University
Apperson Hall 202
Corvallis, OR 97331-2302

Telephone: (503) 737-6894 FAX: (503) 737-0485

E-mail: yims@joshua.math.orst.edu

Date: 30 OCT 1993





TITLE: A Workshop on New Directions in Extremal Stochastic Analysis

of Nonlinear Ocean systems

PI: Solomon C.S. Yim

Ocean Engineering Program, Department of Civil Engineering

Corvallis, OR 97331-2302

Tel: (503) 737-6894; E-mail: yims@joshua.math.orst.edu

R & T PROJECT CODE: 4114629---01

CONTRACT NO: N00014-93-10480

CURRENT END DATE: 30 SEP 1993

SCIENTIFIC OFFICER: Julia Abrahams

Technical Objective: The objective of the workshop was to facilitate the advancement of the state of knowledge for the evaluation of the response of nonlinear ocean systems to stochastic excitation, with emphasis on response characteristics of significance for reliability analysis. The workshop would provide a forum for: (1) ONR supported researchers under the new program on "Reliability of Nonlinear Ocean Structures Under Stochastic Excitation" (the reliability program) and experienced Navy personnel to hold discussions and exchange ideas on Naval needs to date and new research directions; and (2) the coordination of research efforts among physics, mathematical sciences, and engineering researchers under the program to achieve cross-field synergistic effects.

Approach: The approach was to hold a workshop at the initiation of the reliability program. All ONR PIs directly supported under the program, other ONR supported PIs on related research topics, and personnel from various Naval centers including ONR, David Taylor Model Basin, Naval Surface Warfare Center, Naval Sea Systems Command, and Naval Civil Engineering Laboratory were invited to participate.

Accomplishment: A very successful workshop was held on 7-8 July 1993. PIs in mathematics, physical sciences, and engineering directly supported under the program gave tutorial presentations in their specialty and discussed their specific approaches and plans for the first year of their research. ONR and other Navy personnel presented state-of-the-art, practical procedures for analysis and design of naval systems and immediate research needs for their reliability analysis. A general discussion session was held immediately after the presentations. Focus of the discussion was on naval systems modeled as stochastic differential equations with excitations that were non-Gaussian processes describing wind, wave, and current effects. The two-day workshop achieved it goals of facilitating technical knowledge exchange and the fine-tuning of the research focuses of the individual PIs in the program. A proposal for a second workshop was submitted (and subsequently accepted) to continue the exchange of ideas and update research progress among all the participants.

Accesion For		
NTIS		<b>A</b>
DTIC		
	Unannounced	
Justification		
By Distribution /		
Availability Codes		
Dist	Avail and / or Special	
A-1		